EPA-PNL-1952

Sheila Eckman/R10/USEPA/US
05/29/2012 08:28 PM

To Richard Parkin, Judy Smith, Tami Fordham, Marianne Holsman, Hanady Kader, Cara Steiner-Riley, Palmer Hough, Rachel Fertik, Glenn Suter, Phil North, bdaniels, rich, Bill Dunbar
cc Jeff Frithsen
bcc
Subject BB - draft public presentation

Here is the draft public presentation. Script is as important as the slides. You can send me comments, but I suggest that we wait until after the dry run tomorrow to make changes. I know there are still some formatting issues. For those of you who met with Dennis, please let me know if this is responsive to his concerns. I deleted some slides and combined others. Thanks!

20120529BBAPublic_Presentation_draftECKMAN.pdf

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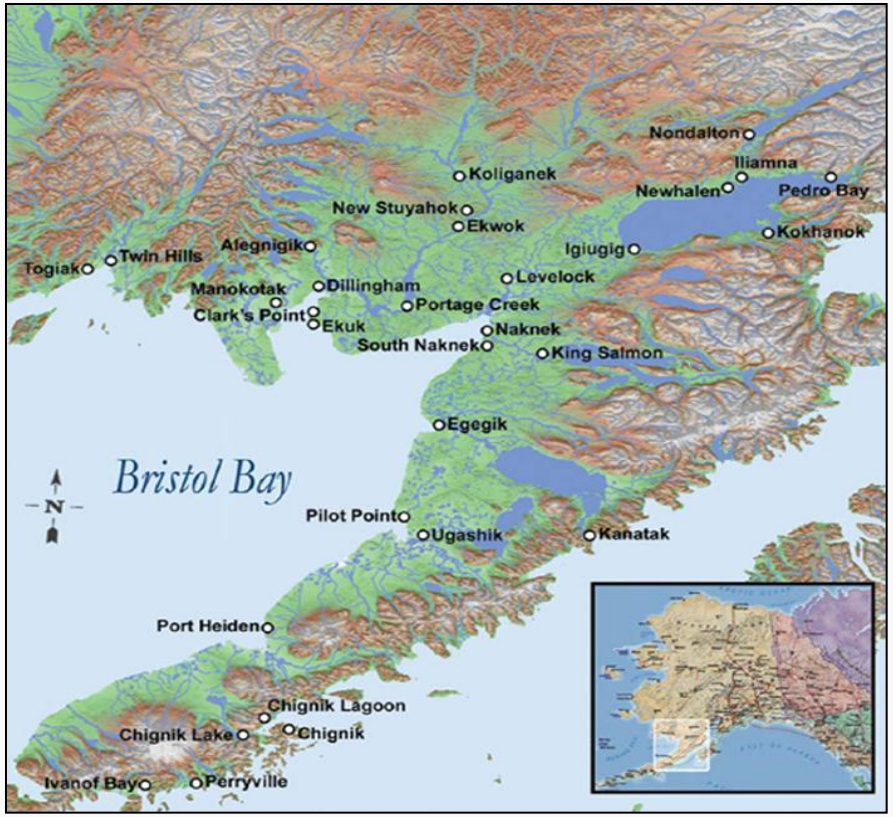
EPA Bristol Bay Draft Watershed Assessment

Photo courtesy of Thomas P. Quinn, University of Washington

In this Presentation We Will ….

- Introduce the draft assessment.
- Review the contents of the assessment.
- Let you know how you can provide input on the draft assessment.
- Talk about next steps



Why is EPA Doing an Assessment?

- Assessment will provide EPA with needed information to make future regulatory decisions.
- Under the Clean Water Act, EPA is responsible for protecting waters of the US.

The Draft Assessment is NOT:

A regulatory decision. The assessment results will be used by regulatory decision makers in the future.

An assessment of ALL potential impacts from development. This assessment focuses on impacts related to the discharge of dredged and fill material to water. There are other regulatory processes (NEPA, Air Permitting) which will address other potential impacts.

A field investigation. The assessment used available information and data, with the exception of interviews with Tribal Elders.

Scope of the Assessment:

- Potential impacts from large-scale mining…
- on salmon….
- and salmon-related impacts on wildlife and Alaska Native culture.

Chapter 3

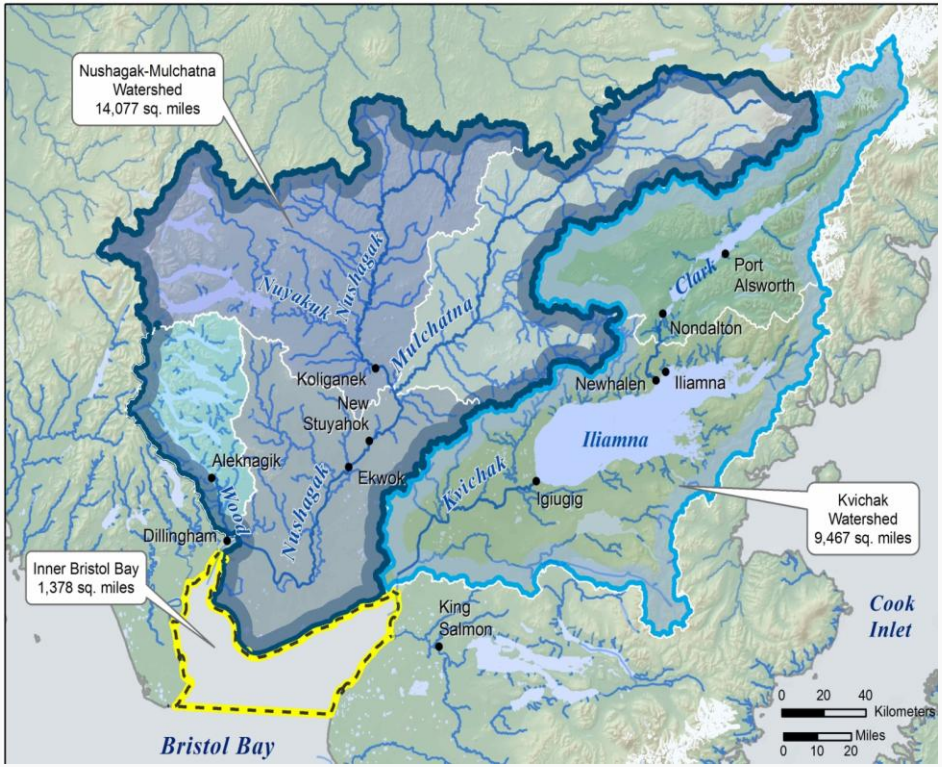
Assessment Area and Time Frame

- **TIME FRAME:**
  - **–Development and operation of the mine (25 – 100 years)**
  - **–Post-mining: would need to be monitored and managed forever**

Chapter 3

AREA:

Nushagak and Kvichak Watersheds



Assessment Approach

- Collected information about watersheds. Chapter 2 and Appendices

- Described elements of large-scale mine (mine scenario). Chapter 4

- Looked at possible effects from large-scale mining in these watersheds. Chapters 5-8

Utah's Bingham Canyon Mine

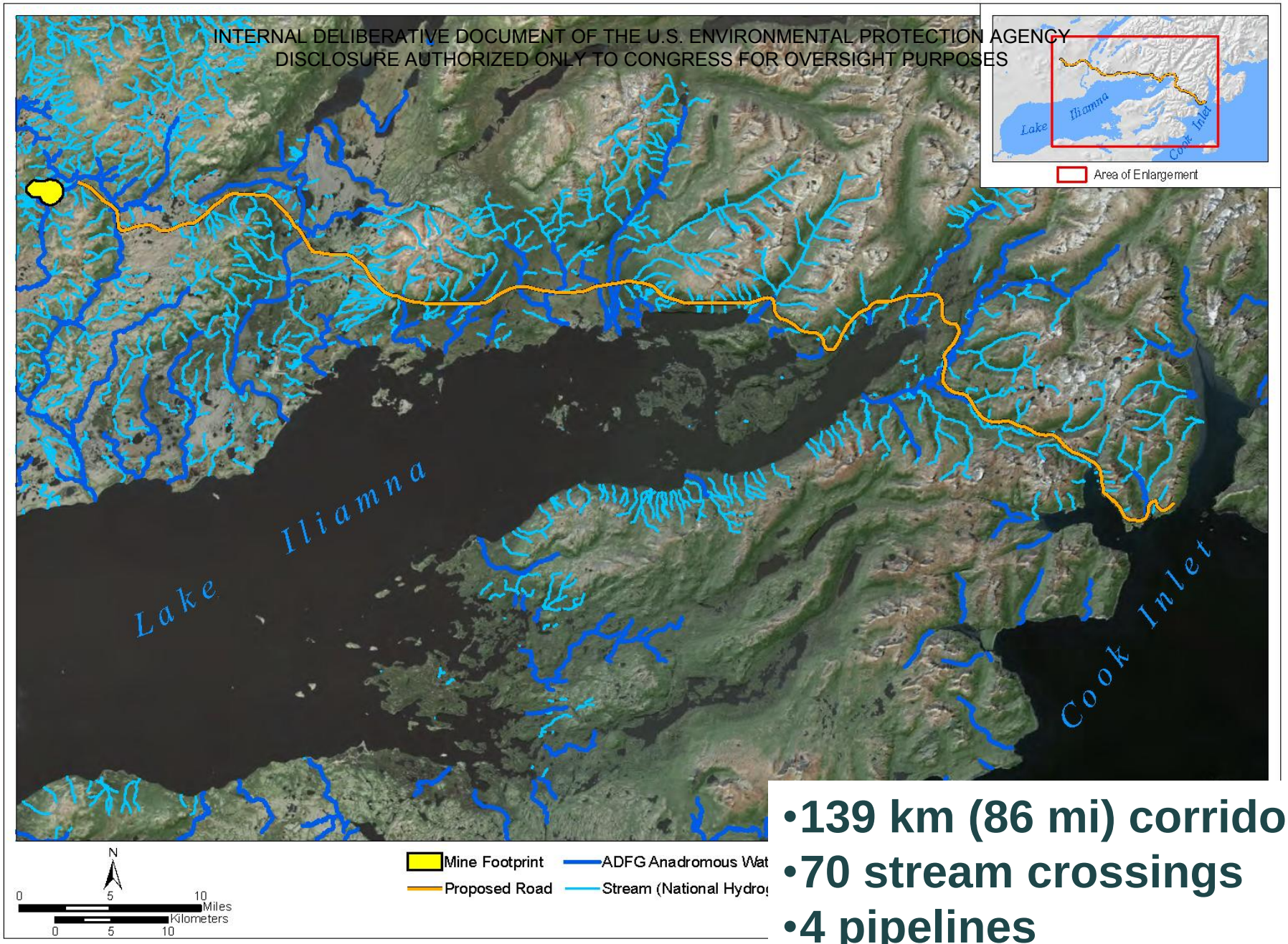
Hypothetical Mine Scenario

- **Based in available information and knowledge about mining.**

Chapter 4

- **At Pebble deposit.**

- **Two scenarios – minimum and maximum.**
- **Included:**
  - **Open pit mine**
  - **Waste rock pile**
  - **Tailings storage facilities**



- 139 km (86 mi) corridor
- 70 stream crossings
- 4 pipelines

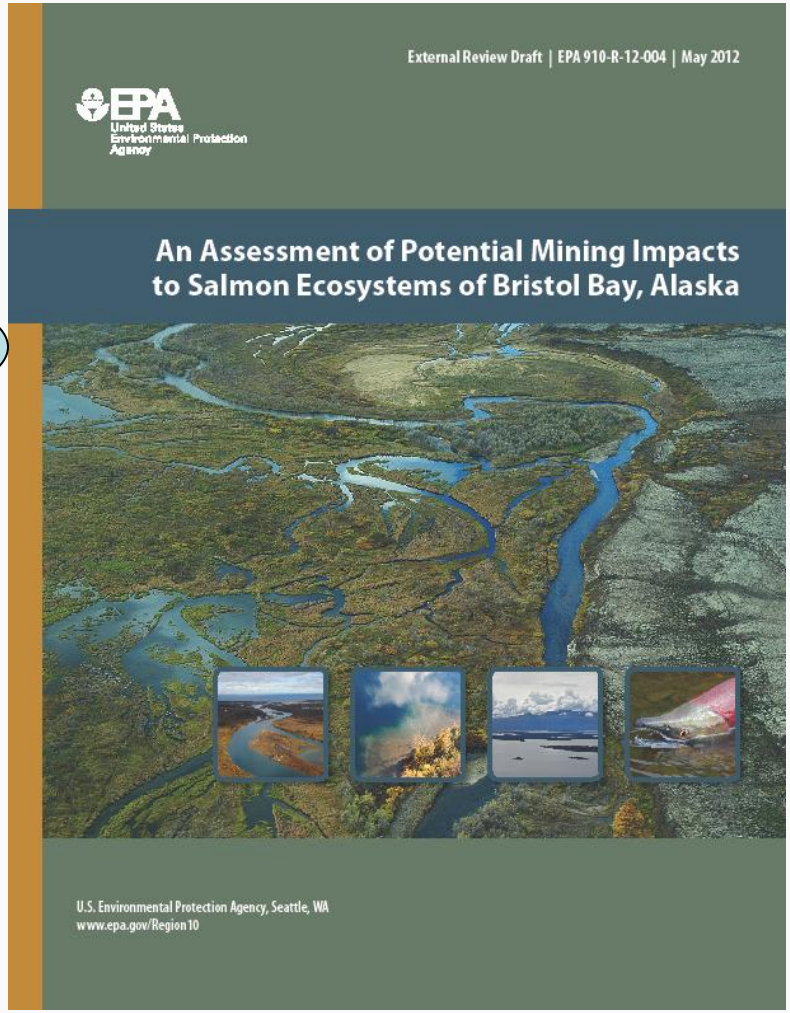
Draft Assessment Considered …..

- A mine with no engineering failures or operational accidents anytime during or after operation.

Chapter 5

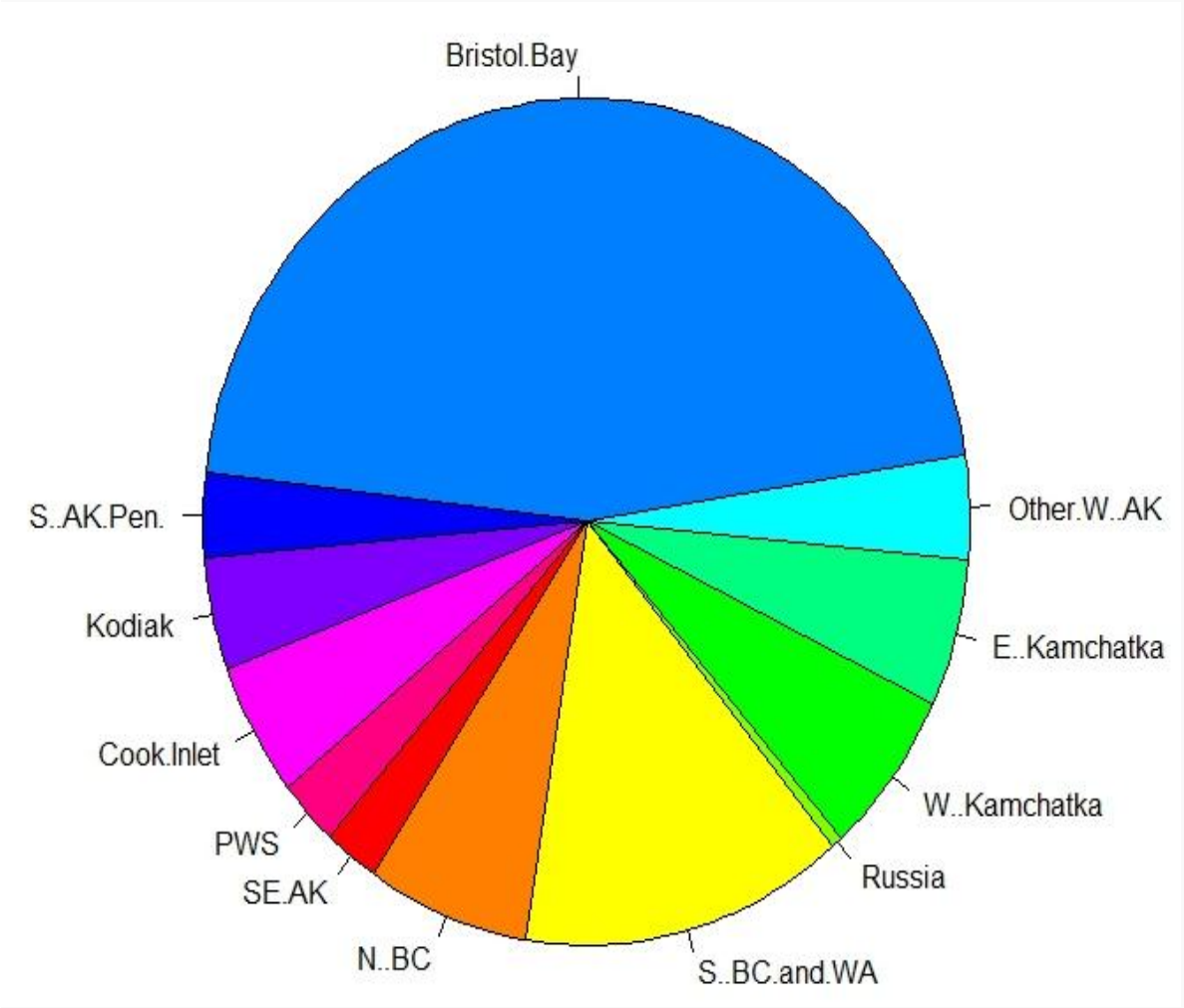
- Possible common failures related to mining operations and storage of water during and after mining operations.

Chapter 6

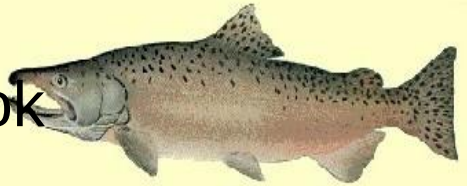


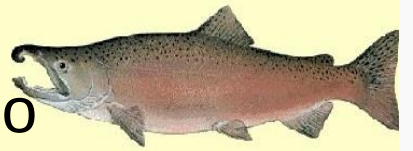
Fishery is Unequaled in World

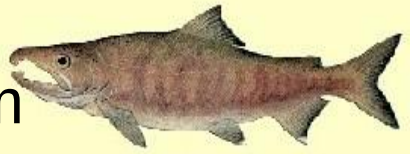
Appendix A



Sockeye 

Chinook 

Coho 

Chum 

Pink 

Why does Bristol Bay produce so many salmon?

- Confluence of climate, topography and geology to provide habitat
  - Ample precipitation – 44 inches at the Pebble Deposit
  - Topography not too steep and not too flat
  - Glacial history provides
    - Good substrate (permeable land surface and river beds)
    - Strong groundwater/surface water interchange
    - Many large lakes
- Limited human development/impact

Diverse habitat among many rivers and lakes results in many discrete populations and a robust metapopulation ("portfolio effect") producing less variance for the fishery.

Economic Importance of Fishery

Appendix E

Commercial Fishery

- Value: Nearly $300 million in 2009
- Full/part-time jobs: over 11,500

Sport Fishery

- Annual spending on fishing: $60 million/year
- Full/part time jobs: over 850

Subsistence

- Annual per capita harvest: 343 lbs of food.
- Virtually all households use subsistence foods
- Mixed subsistence/cash economy
- Estimated value of $6 million/year

Indigenous Cultures

One of the last intact, sustainable salmon-based cultures in the world.

Salmon and other wild foods have been valued and protected for over 4,000 years.

Appendix D

Salmon are nutritionally, socially, spiritually, and culturally integral to the Alaska Natives in the Bristol Bay Watershed.

Subsistence Resources

- 98% of households use and share wild foods.
- Residents get 80% of their protein from subsistence.
- Salmon account for 52% of subsistence harvest.

Appendix D

Risks – No Failures

Assuming no failures, a single large mine is likely to have the following effects:

- Loss of tens of kilometers of stream habitats and thousands of acres of wetlands due to mine pit, waste rock, and tailings storage facilities.

- Loss of additional stream habitat downstream of mine site is likely due to changes in hydrology.

- Loss of stream and wetland habitats will adversely impact local fish populations, alter wildlife, and impact subsistence hunting.

Chapter 5

Risks From Failures

- **Some type of failure is likely during the life of the mine and during the centuries-long post closure period.**

- **Potential failures include:**
  - Leakage of acidic drainage and other contaminated waters from the waste rock, pit walls and tailings to surface water and groundwater.
  - Failures of road culverts that block streams supporting anadromous fish.
  - Pipeline failures that release toxic slurry.
  - Failures of tailings dams.

Chapter 6

Failure to Collect and Treat Leachate

Probability: High

- During mine operation and for hundreds of years following closure of the mine, waters leaching from waste rock and tailings would require capture, collection, pumping and treatment.

- Even if water is treated, it might not have a chemical composition or temperature similar to natural waters.

- If there was a failure to collect and treat runoff from the waste rock, the entire length of Upper Talarik Creek and a large mixing zone in Iliamna Lake would be affected by acid leachate toxicity.

Failure of the Product Slurry Pipeline

Probability: Likely

- Failure rates for other pipelines suggest there will be 1 to 2 spills within 100 m (328 ft) of a stream over a 78 year operating scenario.
- Slurry spill has potential to contaminate 1.6 to 21 mi of stream habitat and has potential to enter Iliamna Lake.
- Spill would cause both short term and long term toxic responses in fish.
- Fine grained sand-like slurry would be difficult to clean-up, most likely resulting in long-term impacts to stream habitats.

Failure of a Tailings Dam

Probability: Low annually. Increases with more dams and over time.

- Mine tailings would completely fill the downstream valley , wiping out salmon habitat.

- Loss of fish and wildlife would affect subsistence resources and Alaska Native cultures.

Risks from Multiple Mines

- Draft assessment considers development of mines at several different mineral deposits.

- Risks are similar to a mine at the Pebble deposit.

Chapter 7

Independent Scientific Peer Review Panel

- You can provide input on the questions we ask the panel.

- The panel will meet in August and there will be opportunities to comment directly to the panel.

Photo courtesy of Thomas Quinn, Univ of Washington

We Value Your Input

- What needs to be changed to make the analysis more accurate?
- What information needs to be added to make the draft assessment more complete?
- What are your observations or conclusions after reviewing the draft assessment?

It is important for us to hear many perspectives in order to make informed decisions

How to Submit Comments

Preferred method: Submit them online at regulations.gov Follow the online instructions for submitting comments to Docket # EPA-HQ-ORD-2012-0276.

Spoken comments will be accepted at our public meetings in Alaska.

For information on other options, visit www.epa.gov/bristolbay